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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/912,072
Filing Date: July 24, 2001
Appellant(s): MOYER ET AL.

Alice M. Bonnen
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 02/01/2008 appealing from the Office action mailed 08/02/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Ling et al. HortSci, 1997, 32:122-124

Loh et al., Annal. of Bot., 1999, 84:155-161.

Dice et al., Ecology, 1945, 26:297-302

Barcaccia et al. J. Horticultural Science and Biotechnology, 1999, 74:243-50.

Sukhwinder et al. Crop Improvement, 1998, 25:15-20.

Barker et al., Genome, (1999) 42:173-183

Tullos, Off print from Palm ME and IH Chapela eds. 1997

Keim et al. J. Applied Microbiology, 199, 87:215-217.

Arnold et al. J Clin Micro. 1999 37:1274-1279.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections – 35 USC 103(a)

(A). Claims 1, 3, 5-7, 21, 23-24, 63 and 69 rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (*HortScience*, 1997) in view of Loh et al. (*Annals of Botany*, 1999 84(2): 155-161), as defined by Dice (*Ecology*, 1945).

Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (instant claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column). Figure 3 displays the amplified restriction fragments generated by RAPD analysis and figure 1 demonstrates the cultivar relationships. The collection of RAPD data, or database as require in claim 28, enables the computation of the displayed cultivar relationships both in Figure 1 and 2. Ling et al. teach that the RAPD markers can be used for identification of poinsettia cultivars and that the results indicate that RAPD can be used to determine the genetic relationships among cultivars and to

estimate genetic diversity between cultivars (page 124, 1st full paragraph). Ling et al. does not teach the AFLP method steps to distinguish genetic relationship or diversity.

Loh et al. teach a method using an AFLP marker protocol to identify and study intra- and inter- specific variations in *Caladium bicolor* cultivars, an ornamental asexual plant. Loh et al. teach using AFLP to generate a fingerprint of each plant (page 151, paragraph bridging 1st and 2nd column) and determine the identity/diversity by calculating the genetic dissimilarly estimate (GDE) in all pair wise comparisons (page 159, *Data analysis*) (instant claims 63 and 69). Loh et al. teach digesting genomic DNA with EcoRI and Mse I (page 159, *AFLP analysis*) (instant claims 7, 24), which have tetranucleotide and hexanucleotide recognition sites (instant claims 6, 23). The genetic dissimilarity of *Caladium bicolor* is shown in table 3 and table 4, determining the diversity of the each cultivar of *Caladium bicolor* and *C. schomburgkii* (page 157 and 160) (instant claims 3 and 21). Dice defines the values or scores range from 0 to 1 where 0 indicates dissimilarity and 1 indicates similarity (pp. 298-99, bridging paragraph). Loh et al. also teach using AFLP revealed consistent diversity between C. schomburgkii and C. bicolor cultivars and between closely related taxa of Caladium (page 161, 1st column, 2nd full paragraph). Loh et al. et al. teach using AFLP markers is useful in differentiating and characterizing cultivars within a Caladium species (page 161, 1st column, last paragraph).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to improve the method of identifying poinsettia cultivars by RAPDs marker taught by Ling et al. to include the AFLP marker assay as taught by Loh et al. One of ordinary skill in the art would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Loh et al. because Loh et al.

teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible and reliable results. The ordinary artisan would have had a reasonable expectation of success in using AFLP marker assay taught by Loh in the method taught by Ling et al. of Poinsettia cultivar genetic analysis because Loh et al. teach using AFLP markers to identify inter and intra-cultivars in C.bicolors, an ornamental asexual plant, like that of Poinsettia cultivars, to determine their diversity to provide a reliable and reproducible means of fingerprinting the many Caladium cultivars available commercially and for newly developed cultivars (page 155, 2nd column, 1st paragraph).

(B). Claims 1, 3, 5-7, 21, 23-24, 30, 63 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (*HortScience*, 1997) in view of Barcaccia et al. (*Journal of Horticultural Science and Biotechnology*, 1999 74(2): 243-50), as defined by Dice (*Ecology*, 1945).

Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (instant claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column). Figure 3 displays the amplified restriction fragments generated by RAPD analysis and figure 1 demonstrates the cultivar relationships. The collection of RAPD data, or database as require in claim 28, enables the computation of the displayed cultivar relationships both in Figure 1 and 2. Ling et al. teach that the RAPD markers can be used for identification of poinsettia cultivars and that the results indicate that RAPD can be used to determine the genetic relationships among cultivars and to

estimate genetic diversity between cultivars (page 124, 1st full paragraph). Ling et al. does not teach the AFLP method steps to distinguish genetic relationship or diversity.

Barcaccia et al. teach a method using an AFLP marker protocol to distinguish genetic relationships and diversity of *Pelagorium peltatum*, an ornamental asexual plant. Barcaccia et al. teach using AFLP to generate a fingerprint of each plant (page 245, *AFLP markers*) and determine the identity/diversity by calculating the genetic dissimilarly estimate (GDE) in all pair wise comparisons using the formula by Dice et al (1945) (page 245-6, *Data collection and analysis*) (instant claims 63 and 69). Barcaccia et al. teach digesting genomic DNA with EcoRI and Mse I (page 245, 1st column, 4th full paragraph) (instant claims 7, 24), which have tetranucleotide and hexanucleotide recognition sites (instant claims 6, 23). The genetic dissimilarity of *P. peltatum* is shown in Table III, determining the diversity of the nine plants and the recovered flower (page 248) (instant claims 3 and 21). Dice defines the values or scores range from 0 to 1 where 0 indicates dissimilarity and 1 indicates similarity (pp. 298-99, bridging paragraph). Barcaccia teaches all calculations and analyses were conducted on Numerical Taxonomy and Multivariate Analysis System (NTSYS-pc) (page 246, 1st full paragraph, 1st column) (instant claim 30). Barcaccia et al. also teach RAPD marker analysis but teaches that banding patterns were not reproducible in subsequent replicated PCR experiments and therefore, not useable in molecular comparison with the plants (page 247, 2nd column, 1st full paragraph). Further, Barcaccia et al. teach using AFLP revealed consistent diversity between the flower recovered and each of nine DNA samples (page 247, 2nd column, last paragraph). Barcaccia et al. teach that AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of

probing a large number of genomic loci per experiment and decimating genetic differences, even between phenotypically similar individuals (page 249, 2nd column, 1st full paragraph). Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and are effective for calculating the genetic distance between cultivars (page 249, 2nd column, 3rd full paragraph).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to improve the method of identifying poinsettia cultivars by RAPDs marker taught by Ling et al. to include the AFLP marker assay as taught by Barcaccia et al. One of ordinary skill in the art would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Barcacci et al. because Barcacci et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible, reliable, efficient results. Further, Barcacci et al. motivates the ordinary artisan to use the AFLP technique because Barcacci et al. teaches that using AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and discriminating genetic differences, even between phenotypically similar individuals (page 249, 2nd column, 1st full paragraph). The ordinary artisan would have had a reasonable expectation of success in using AFLP marker assay taught by Barcaccia in the method taught by Ling et al. of Poinsettia cultivar genetic analysis because Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and teaches that AFLP markers have the ability to identify new

cultivars to determine their diversity with respect to previously registered cultivars of decorative plants (ornamental plants) (page 249, 2nd column 3rd full paragraph).

(C). Claims 1, 3, 5-7, 21, 23-24, 30, 63 and 69 rejected under 35 USC §103(a) as being unpatentable over Ling et al. (*HortScience*, 1997) in view of Sukhwinder et al. (*Crop Improvement*, 1998), as defined by Dice (*Ecology*, 1945).

Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column). Figure 3 displays the amplified restriction fragments generated by RAPD analysis (cultivar-linked amplified polymorphic restriction fragments, claims 70-74) and figure 1 (and legend) demonstrates the computed cultivar relationships. The collection of RAPD data, or database as require in claim 28, enables the computation of the displayed cultivar relationships both in Figure 1 and 2.

Ling et al. does not teach the AFLP method steps of distinguishing genetic relationship or diversity as required by the claims.

Sukhwinder et al. teaches a method of distinguishing genetic relationships and diversity between Oryza cultivars (rice) utilizing AFLP analysis. In using the AFLP assay, the pattern of a collection of amplified restriction fragments of one plant/cultivar (its fingerprint) is compared to another in order to determine its similarity or dissimilarity to known cultivars (p. 17, figure 1) as required by claim 1. The fragments are generated utilizing restriction enzymes MseI and EcoRI

(p. 16, 2nd column, 1st paragraph)(claims 7, 24), which have tetranucleotide and hexanucleotide recognition sites (claims 6, 23). The comparison is based upon a computed similarity coefficient, or 'index value' (claim language) for each comparison to indicate similarity or dissimilarity. The similarity coefficient is taught to be "derived through pair-wise comparison of the genotypes based on the presence or absence of shared polymorphic bands"(p. 18, 1st column, 1st paragraph)(claims 63. 69). Figure 2 demonstrates the Dice coefficient of similarity (claims 3, 21) amongst multiple rice varieties. [Dice defines the values or scores range from 0 to 1, wherein 0 indicates dissimilarity and 1 indicates similarity (pp. 298-299, bridging paragraph)]. A computer program was utilized to generate the dendogram of figure 2, which displays the clustered results of the performed method (p. 18, 1st column, 1st paragraph) (claim 30). Sukhwinder et al. teaches that other fingerprinting methods such as restriction fragment length (RFLP) analysis and random amplified polymorphic DNA (RAPD) assays had been commonly used to discriminate various cultivars, however the new technique of using AFLP "combines reliability and robustness of RFLP and strength of PCR techniques. Sukhwinder et al. teaches that the AFLP technique is considered powerful for genome mapping, genotype identification and phylogenetic studies" (p. 15, 2nd column, 1st paragraph).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to improve the Poinsettia cultivar genetic analysis method of Ling et al. and further modify the RAPD procedure used by Ling et al. to the improved method of cultivar analysis using AFLP techniques as per the teachings of Sukhwinder et al. One of ordinary skill in the art would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Sukhwinder et al. because Sukhwinder et al.

teaches of the advantages of using the AFLP procedure of analyzing genetic relationships and diversity as opposed to RAPD and RFLP. In addition, Sukhwinder et al. motivates the ordinary artisan to use the AFLP technique because Sukhwinder et al. teaches that although other fingerprinting methods such as RFLP and RAPD assays had been commonly used to discriminate various cultivars, the new technique of using AFLP "combines reliability and robustness of RFLP and strength of PCR techniques". Sukhwinder et al. teaches that the AFLP technique is considered powerful for genome mapping, genotype identification and phylogenetic studies" (p. 15, 2nd column, 1st paragraph).

(D). Claims 1, 3, 5-6, 21, 23, 30, 63 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (*HortScience*, 1997), in view of Barker et al. (*Genome*, 1999) as defined by Tullos (Offprint from Palm ME and IH Chapela, eds, 1997).

Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars. The method utilizes RAPD analysis to distinguish the identities between poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column). Figure 3 displays the amplified restriction fragments generated by RAPD analysis (cultivar-linked amplified polymorphic restriction fragments, claims 70-74) and figure 1 (and legend) demonstrates the computed cultivar relationships. The collection of RAPD data, or database as require in claim 28, enables the computation of the displayed cultivar relationships both in Figure 1 and 2.

Ling et al. does not teach the AFLP method steps of distinguishing genetic relationship or diversity as required by the claims.

Barker et al. teaches a method of distinguishing genetic relationships and diversity between Salix cultivars (willows) utilizing AFLP and RAPD analysis. The comparison of the band patterns generated by the AFLP assay is carried out by the computation of a similarity coefficient, or 'index value' (claim language) for each comparison to indicate similarity or dissimilarity between plants. The similarity index values were generated utilizing the Jaccard coefficient (claims 3, 21) based upon the combined data set for total bands in addition to polymorphic bands that were present or absent generated by restriction digests (p. 178, 1st-2nd column)(claim 1). [Tulloss defines the similarities indices such as the Jaccard coefficient has lower and upper bounds wherein the range is from 0 to 1, wherein 0 indicates dissimilarity and 1 indicates similarity (pp. 126 and 129)]. The bands are fragments generated from the restriction enzymes MseI and PstI, which have tetranucleotide and hexanucleotide recognition sites (p. 176, 1st column, 2nd paragraph)(claims 6, 23). A computer program was utilized to generate the dendograms and plots of figures 2 and 3, which displays the clustered results of the performed method (pp. 179-180) (claim 30). In contrast to the problematic results of RAPD analysis, AFLP was demonstrated to be "highly reproducible and highly discriminatory" (p. 178, 2nd column, 2nd paragraph) therefore Baker et al. suggests that although both assays were informative, the AFLP assay "revealed more genetic diversity and discriminated between closely related clones" (p. 182, 1st column, 2nd paragraph).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to improve the Poinsettia cultivar genetic analysis method of Ling et al. and further modify the RAPD procedure of Ling et al. to the improved method of cultivar analysis using AFLP techniques as per the teachings of Barker et al. One of ordinary skill in the

art would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Barker et al. because Barker et al. teaches the advantages of the AFLP method of analyzing genetic relationships and diversity as opposed to RAPD. Barker et al. motivates the ordinary artisan to preferably use AFLP instead of RAPD in determining accurate cultivar identity by demonstrating that although both were informative, the AFLP assay "revealed more genetic diversity and discriminated between closely related clones" (p. 182, 1st column, 2nd paragraph).

(10) Response to Argument

Legal Standard of Obviousness

The appellants asserts on page 6-7 of the appeal brief mailed 02/21/2008, that in order to establish a prima facie case of obviousness, the patent office must satisfy three requirements, the combination of references must teach or suggest all of the limitations of the claims, the prior art coupled with the knowledge available in the art at the time of the invention must contain some teaching or suggestion that would have motivated the skilled artisan to modify a reference or to combine references, and proposed modification must provide a reasonable expectation of success, determined from the vantage point of the skilled artisan. The appellants assert that a prima facie case of obviousness has not been established with regard tot eh combinations of the presently cited references. The appellants assert that no clear and particular evidence has been presented that provides any motivation to combine and no evidence has been presented that one of ordinary skill would have considered the proposed combinations to any reasonable expectations of success. This response has been thoroughly reviewed but not found persuasive. In instant case, it would be obvious to combine the references because Ling et al. teach a method

of determining the genetic relationship among cultivars of poinsettia by the use of RAPD markers for identification of poinsettia cultivars and Ling et al. teach that the results indicate that RAPD can be used to determine the genetic relationships among cultivars and to estimate genetic diversity between cultivars (page 124, 1st full paragraph). Each of the references Barcaccia, Sukhwinder, and Barker provide motivation to combine and expectation of succession that the method of RAPD taught by Ling et al. could be modified to include the known predictable AFLP method taught by Barcaccia, Sukhwinder, and Barker. For example, Barcaccia et al. teach using AFLP revealed consistent diversity between the unknown flower recovered and each of nine DNA samples (page 247, 2nd column, last paragraph). Barcaccia et al. teach that AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences, even between phenotypic ally similar individuals (page 249, 2nd column, 1st full paragraph). Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and are effective for calculating the genetic distance between cultivars (page 249, 2nd column, 3rd full paragraph). Therefore, one of ordinary skill in the art would be motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Barcaccia et al. because Barcaccia et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible, reliable, efficient results. Furthermore, Barcaccia et al. teach that pelargoniums are genetically uniform but to an increasing extent are commercial hybrids with more than 4000 cultivars created by controlled mating or mutations (see page 243, 2nd column, 1st full paragraph). Therefore, one of

skill in the art would be motivated to use the method of Barcaccia to identify genetic profiles of poinsettia plants as poinsettia plants are commercial hybrids with many cultivars that have been controlled by mating or mutations and are genetically uniform. Furthermore, Sukhwinder et al. teaches that although other fingerprinting methods such as RFLP and RAPD assays had been commonly used to discriminate *various* cultivars, the new technique of using AFLP "combines reliability and robustness of RFLP and strength of PCR techniques". Additionally, Barker et al. teach the AFLP assay "revealed more genetic diversity and discriminated between closely related clones" (p. 182, 1st column, 2nd paragraph) and therefore the ordinary artisan would have been motivated to use the assay of AFLP to determine genetic variation in poinsettias. Therefore, Loh, Barcaccia, Sukhwinder, and Barker teach that an ordinary artisan would have been motivated to use the assay of AFLP to determine genetic variation in poinsettias and teach an reasonable expectation of success that AFLP could be used in the method taught by Ling et al.

Additionally, as stated in MPEP 2141, section (I), the recent decision by the Supreme Court in *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007), reaffirmed the principles of obviousness based on its precedent that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. The supreme court further states that when a work is available in one field of endeavor, design incentives, and other market forces can prompt variations of it. If a person of ordinary skill can implement a predictable variation, 103 likely bars its patentability. The court states that when considering obviousness of a combination of known elements, the operative question is thus where the improvement is more than the predictable use of prior art elements according to their established functions. Thus, in the instant case the method of using a known

method of AFLP to distinguish cultivar diversity was known in the art and taught by Loh, Barcaccia, Sukwinder, and Baker, thus substituting one known method of DNA fingerprint analysis using RAPD as taught by Lin for another known method of DNA fingerprint analysis using AFLP as taught by Loh, Barcacci, Sukwinder or Baker would have render the predictable result of using AFLP to determine genetic variation in poinsettias.

(A) Claim Rejections – US 103(a) - Ling et al. in view of Loh et al. as defined by Dice et al.

The appellant traverse the rejection on pages 7-13 of the appeal brief. Appellants assert that Ling et al. reference does not disclose or suggest a method of estimating a genetic relationship between poinsettia plants, a method of determining the profile similarity between a poinsettia plant and a known poinsettia cultivar, or a method of distinguishing a poinsettia cultivar from a known poinsettia cultivar using AFLP analysis as recited by the present claims. Appellants state that Ling et al concerns RAPD analysis and Ling using RAPD analysis to compare the DNA of poinsettia cultivars from widely differing groups and as a result the RAPD markers used would not have to have been robust to distinguish these cultivars and Ling alone or in combination does not rend obvious the present invention utilizing AFLP analysis to distinguish among and between closely related poinsettia cultivars. It is noted that the claims are drawn to comparing the DNA of poinsettia cultivars from widely differing groups and the claims merely require a method of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar, the claims do not require closely related poinsettia cultivars. The claims simply require some level of polymorphic analysis using AFLP to distinguish poinsettias. Furthermore, Ling et al. describe a detailed enabling methodology of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom'

(instant claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column), however Ling et al. does not teach the AFLP method steps to distinguish genetic relationship or diversity. Loh et al. teach the successful use of AFLP to distinguish genetic relationships between C. schomburgkii and C. bicolor cultivars and between closely related taxa of Caladium (page 161, 1st column, 2nd full paragraph). Loh et al. et al. teach using AFLP markers is useful in differentiating and characterizing cultivars within a Caladium species (page 161, 1st column, last paragraph). Loh et al. suggest that AFLP could be used in the method of Ling et al because Loh et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible and reliable results. Therefore, one of ordinary skill in the art would have been motivated to modify the teachings of Ling to include AFLP as taught Loh et al. The ordinary artisan would have had a reasonable expectation of success that AFLP could be used in the method by Ling et al. because Loh et al. teach the use of AFLP to analyze genetic relationships in ornamental plants.

Appellants state page 8, 2nd paragraph that the outstanding rejection is based on the premise that Loh et al. provides motivation for one of ordinary skill in the art to apply AFLP analysis to poinsettia because Loh et al. used this technique to evaluate Caladium cultivars. The response asserts that there is no suggestion in the cited Loh publication that AFLP analysis could be applied to poinsettia or even a more general statement that AFLP analysis would be suitable for the study of ornamental plants other than Caladium. The appellants assert that Loh et al. is solely concerned with Caladium and the applicability of AFLPs to Caladium cultivars. It is

noted that Loh teaches that AFLP markers are useful in differentiating and characterizing cultivars with Caladium species (see page 161, last paragraph). Loh et al. teaches the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible and reliable results (see page 161, 1st column, 2nd full paragraph). Furthermore, the ordinary artisan would have been motivated to use AFLP as taught by Loh et al. in the method of Ling et al. to provide a sensitive, reliable, and consistent molecular technique for studying intra- and inter-specific variations (see page 155, 2nd column, 1st paragraph of Loh et al.). Thus Loh et al. provides motivation for one of ordinary skill in the art to apply AFLP analysis to poinsettias.

Appellants assert on page 8, last paragraph, that Caladium is a monocot and entirely unrelated to the poinsettia which is a dicot and thus one of ordinary skill in the art would not have considered results in distinctly related plants such as Caladium to poinsettia to be applicable to one another. The appellant assert that the taxonomic relationship is provided and detailed in the declaration by Dr. Moyer. Appellants state on page 9, 1st paragraph that Caladium is not even in the same taxonomic class as poinsettias and one of skill in the art would be well aware of the distant relationship between poinsettia and the reference plant, Caladium and as such the work aimed at Caladium would have provided absolutely no motivation to one of skill in the art with respect to the invention. It is noted that the claims do not require any taxonomic relationship and are drawn to a method of estimating a genetic relationship between a genomic DNA and a cultivar. Furthermore, as repeatedly shown in several references, Loh , Barcaccia, Barker, as well as Arnold and Keim et al. AFLP can distinguish genetic relationships even within very similar species, as taught by Arnold and Keim (E. coli and B. Anthracis) and thus

there is no evidence that AFLP is unpredictable for poinsettias. Furthermore, AFLP analyzes the DNA of the species and does not compare the taxonomic relationship of species. AFLP as taught by Loh allows for detection of mutations in the whole genome by AFLP markers which is a reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences even between phenotypically similar individuals. Thus, the ordinary artisan would have been motivated to use the method of AFLP as taught by Loh in the method of poinsettia identification as taught by Ling. Furthermore, the ordinary artisan would have been motivated to substitute one known method of determining genetic relationship, RAPD as taught by Ling, for another known equivalent method of determining genetic relationship AFLP, as taught by Loh to obtain predictable results of estimating the genetic relationship between a poinsettia plant and known poinsettia plant.

Appellant's state on page 9, last paragraph that Caladium is not an asexual ornamental plant but rather new cultivars of Caladium are developed by hybridization and assert that hybridization leads to much greater genetic diversity than does asexual reproduction and thus as a result of hybridization each new Caladium cultivar would be relatively genetically diverse as compared to any plant that is asexually reproduced. On page 10, paragraph 2, the appellant's state there is nothing in Loh et al. that states that the genetic diversity of C. bicolor is narrow. Appellants state on page 10, third paragraph that the genetic variation in poinsettia is achieved by selection of sport or naturally occurring or induced mutations and as a result the genetic base of poinsettia is very narrow and thus one of ordinary skill in the art would not conclude that the methods of Loh et al. with Caladium would have had a reasonable expectation of success. The appellants further assert that prior to the studies described in the present application, it would not

have been obvious that AFLP fingerprinting analysis could be successfully applied to poinsettia. The appellant assert that the declaration by Moyer points out that there were some reports that AFLP analysis in other ornamental plants but one of ordinary skill in the art would remain uncertain from these studies whether there would be sufficient inter-cultivar diversity among poinsettia's to be detectably by AFLP. However, as stated in the final office action mailed 08/02/06, several articles, reveal that AFLP was capable of detecting very similar genomic variations at the time the application was filed and thus the ordinary artisan would have not been uncertain that poinsettia's would have been able to be detected by AFLP. For example, Keim et al. (J. Applied Microbiology, 199, 87:215-217) teach use of AFLP for determining molecular diversity in Bacillus anthracis. Keim et al. teach that molecular diversity of B. anthracis has been difficult to identify (see page 215, 2nd column, 1st paragraph). Keim et al. teach that there were two limitation to molecular diversity studies – lack of diverse strain collection and screening methods did not have sufficient capacity to identify the rare variable genomic location (see page 216, 1st column, 1st paragraph). Keim et al. teach that AFLP identified 30 variable regions which gave the ability to screen a large number of potentially diverse strains across a relatively large percentage of B. anthracis genome and teach molecular typing of B. anthracis by AFLP (see figure 1). Furthermore, Arnold et al. (J Clin Micro. 1999 37:1274-1279) evaluated the potential of AFLP as an epidemiological typing collection with valid phylogenetic basis by applying 87 strains of E. coli to AFLP. Arnold et al. teach that AFLP is suitable for providing well defined and reproducible identified or genotypes for each strain of E. coli (see abstract). Arnold et al. teach a very similar genetic diversity of E. coli obtained by AFLP (see figure 2). Arnold et al. teach that AFLP is suitable for genotyping of strains of E. coli (see page 1278, 1st

column, 2nd full paragraph). Therefore, at the time the invention was filed it was known in the art that AFLP could distinguish different genomic diversity among very similar genomes, as demonstrated for E. coli and B. anthracis and thus the ordinary artisan would have been motivated to use AFLP for estimating genetic diversity among poinsettias.

Appellants state on page 10, last paragraph that there is a lack of expectation of success as emphasized by Dr. Moyer's research using microsatellite simple sequence repeat analysis with poinsettia. Appellants state that the declaration by Dr. Moyer shows that SSR analysis failed to differentiate poinsettia cultivars and state that SSR should work as well or even better than AFLP. Appellants state that it would be assumed that if AFLP would have had a reasonable expectation of success than it would also be assumed that SSR would have a reasonable expectation of success however Moyer demonstrates that approach using SSR analysis failed in poinsettia's and it appears that the narrow genetic vase of poinsettia lack polymorphisms in the SSR lock and thus SSR, RFLP, RAPD, AFLP, etc. would not have been obvious as the success using such technologies in poinsettia would be uncertain. It is noted however, the claims are not drawn to analysis of poinsettias by SSR but by AFLP analysis and SSR analysis is a different technique than AFLP and can not be used as an indicator for the unpredictability of AFLP in poinsettias. Furthermore, SSR analysis is not as sensitive a technique as AFLP. SSR analysis depends on repeats in the genome and the length of repeats whereas AFLP depends on mutations present in genomic DNA.

Appellants state on page 11, last paragraph that appellants disagree with the assertion that SSR analysis is not as sensitive a technique as AFLP. Appellants state that any conclusion that one technique is more sensitive than another needs to be made on a species by species basis.

Appellants state that Russell states that SSR have always revealed the highest level of polymorphisms and assert that Pejie teaches SSR provide the highest level of discrimination between any pair of inbreds. It is noted that Russell teaches that highest diversity index was observed for AFLP and only a small group of spring types clustered together using SSR data (see abstract and pg. 716, 2nd column, 1st paragraph). Thus Russell teaches that AFLP has the highest diversity index however Russell does teach that SSR revealed the highest level of polymorphisms however this does not necessarily result in the most sensitive assay (see pg. 719, 1st column, 1st paragraph). Furthermore, Russell teaches that AFLPs are the most efficient because they have the capacity to reveal many polymorphic bands in a single lane thus when the overall diversity indices are compared AFLP is the highest as it has the overall measure of marker efficiency (see pg. 719, 2nd column, 1st paragraph). Russell further teaches that the diversity index of AFLPs to simultaneously analyze a large number of bands rather than the levels of polymorphism detected give AFLPs the highest marker index (see pg. 719, 2nd column, 1st paragraph). Furthermore, Russell provides evidence that although SSRs provide high level of polymorphisms, SSRs do not seem to be particularly useful for assessing genetic relationships among cultivars (See pg. 721, 1st column, last paragraph). Thus the evidence provided in the declaration by Dr. Moyer of the comparison of SSR analysis of poinsettias to provide unpredictability of assessing genetic relationships among cultivars is not persuasive as Russell teaches that SSR and AFLP are not equivalent methods or indicators of genetic diversity and thus one can not extrapolate that unpredictability among SSR analysis in poinsettia is evidence that it is unpredictable to generate AFLP markers in poinsettias. Additionally, Pejic teaches that AFLP is the most efficient marker system because of their capacity to reveal several bands in a

single amplification and the efficiency index is ten fold higher for AFLPs than other methods (see abstract). Thus the method of AFLP is more effective and thus more sensitive than SSR. Furthermore, Peijie and Russell provide further evidence that AFLP marker analysis to distinguish cultivars is predictable.

Appellants state that the articles cited by the examiner to reveal AFLP analysis is capable of detecting very similar genomic variations are analysis of AFLP in bacteria. Appellants state on page 12, last paragraph that one of ordinary skill in the art wishing to analyze genetic diversity within a population of complex multicellular eukaryotes such as plants would not consider publications applying AFLP analysis to bacteria to be relevant. Appellants that the publications do not provide any reasonable expectation of success as to the application of AFLP technology to plants much less poinsettia. Appellants further that that the Arnold states that the population of bacterial strains studied were genetically diverse group and that Keim states the ability to screen large number of potentially diverse strains and therefore appellants state that it is not clear if these references even stand for the proposition made in the final action that AFLP analysis was capable of detecting very similar genomic variations. Appellants assert that one of ordinary skill could not have had any reasonable expectation of success prior to the present invention that sufficient polymorphisms detectably by AFLP would exist among poinsettia cultivars. These remarks has been thoroughly reviewed but not found persuasive. It is noted that the references were not cited to provide motivation but merely to demonstrate the state of the art and the ability of AFLP to detect polymorphisms among very similar genomic variations. Arnold states that the available molecular screening methods did not have sufficient capacity to identify the rare variable genomic location containing the variation among species and thus

Arnold teaches analysis of AFLP to determine molecular variation among B. anthracis to understand the evolutionary relationship (See pg. 216, 1st column, 1st paragraph and 2nd column, last paragraph). Additionally, Keim states that E. coli strains that were analyzed by AFLP were fifteen strains from one serotype and thus have very similar genomic variation (see pg. 1275, 1st column, O157 strains). Additionally, Russell, provided by appellant also demonstrates the predictability, reliability, and efficiency of AFLP to determine inter and intragenomic variability (see paragraph above). Thus the state of the art at the time the invention was filed taught the predictability of using AFLP to distinguish similar genomic variation among similar species.

Appellants state on page 13, that at most the combination of Ling et al, Loh et al, and Dice would have made it obvious to try to apply AFLPs to poinsettia cultivars. Appellants state that obvious to try is not the legal standard for obviousness under section 103 and assert in the absence of any suggestion or demonstration in any of the cited reference that AFLP analysis would be appropriate for the study of poinsettia's and given the lack of any close relationship between poinsettia and plants studied in the cited references there could have been no reasonable expectation of success. Appellants state that Ling in view of Loh as defined by Dice provide neither the motivation or reasonable expectation of success with respect to the present invention. However, Ling et al. describe a detailed enabling methodology of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (instant claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1st-2nd column), however Ling et al. does not teach the AFLP method steps to distinguish genetic relationship or

diversity. Loh et al. teach the successful use of AFLP to distinguish genetic relationships between C. schomburgkii and C. bicolor cultivars and between closely related taxa of Caladium (page 161, 1st column, 2nd full paragraph). Loh et al. et al. teach using AFLP markers is useful in differentiating and characterizing cultivars within a Caladium species (page 161, 1st column, last paragraph). Loh et al. suggest that AFLP could be used in the method of Ling et al because Loh et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible and reliable results. Therefore, one of ordinary skill in the art would have been motivated to modify the teachings of Ling to include AFLP as taught Loh et al. The ordinary artisan would have had a reasonable expectation of success that AFLP could be used in the method by Ling et al. because Loh et al. teach the use of AFLP to analyze genetic relationships in ornamental plants. Additionally both Russell and Peiji as cited by appellants teach that AFLP was used successfully to distinguish cultivars and teach the efficiency of the AFLP markers, which is further evidence that AFLP is not unpredictable in distinguishing cultivar or genetic diversity.

(B) Claim Rejections – US 103(a) - Ling et al. in view of Barcaccia et al. as defined by Dice et al.

Appellants traverse the rejection on pages 14-17 of the appeal brief filed 02/01/2008. These remarks have been thoroughly considered but are not found persuasive to overcome the rejection of record.

Appellants assert on page 14, that the deficiencies of Ling are not remedied by the teaching of Barcaccia concerning Pelargonium or the analytical methods of Dice. Appellants state that the AFLP work in Pelargonium is not relevant to poinsettia and would not have

provided motivation or expectation of success with respect to the claimed invention. Appellants state that Pelargonium or geraniums is taxonomically unrelated to poinsettias. Appellants state that one of ordinary skill in the art would have recognized the enormous difference between germaniums and poinsettia and would not have found the application of AFLP analysis to geranium to teach suggest or motive one to apply AFLP analysis to poinsettia and even if tried the work with AFLPs and geranium would have failed to provide one of ordinary skill in the art a reasonable expectation of success due to the very distant relationship between the two species. However, it is noted that Barcaccia was not cited for its relationship to poinsettias. Barcaccia was cited because Barcaccia et al. teach that AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences, even between phenotypic ally similar individuals (page 249, 2nd column, 1st full paragraph). Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and are effective for calculating the genetic distance between cultivars (page 249, 2nd column, 3rd full paragraph). Therefore, one of ordinary skill in the art would have been motivated to use AFLP, as taught by Barcaccia in the method of Ling et al. because Barcaccia teaches that AFLP provides a powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences.

Appellants state on page 15, 2nd paragraph that the data in Barcaccia was generated using a very small number of geranium plants of entirely unknown genetic origin and the only information that is available about these plants is phenotypic. Appellants state that Barcaccia presents no evidence that any of these plants represent different cultivar populations at all and

thus one of ordinary skill in the art would not have concluded based on Barcaccia that AFLP analysis was successful in distinguishing even germanium cultivars much less poinsettia cultivars. As stated previously, neither the rejection or the claims are comparing the gene pools of poinsettia and geraniums. The rejection sets forth a prima facie case of obviousness that one of ordinary skill in the art would be motivated to use the technique of AFLP for estimating a genetic relationship between poinsettias because Ling et al. teaches the use of RAPD to distinguish a genetic relationship between poinsettia but does not teach the use AFLP. Barcaccia et al. teach that AFLP analysis is successful in identifying genetic relationship between plants and Barcaccia et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible, reliable, efficient results. Furthermore, Barcaccia et al. teach that that pelargoniums (geraniums) are genetically uniform but to an increasing extent are commercial hybrids with more than 4000 cultivars created by controlled mating or mutations (see page 243, 2nd column, 1st full paragraph) and therefore teaches that AFLP can determine polymorphic variations and one of ordinary skill in the art would be motivated to use AFLP to detect polymorphic variations. If a polymorphic variation existed, one would expect that AFLP would detect the variation successfully, as taught by Barcaccia et al, Sukhwinder et al, and Barker et al. for many different types of plants (rice, geraniums, willow). The response repeatedly uses the argument that the genetic relationship between poinsettias and rice, geraniums, willows, etc. is distinct, however none of the rejections or the claims require distinguishing the genetic relationship between poinsettia's or other species or require that the genetic relationship be the same. The rejections of record establish that it

would be obvious to use AFLP in the method of distinguishing a genetic relationship between poinsettia as taught by Ling et al.

Appellants state on page 15, last paragraph that the assertion by the examiner that the claims do not require the genetic origin of the plant to be known is incorrect as claims 1, 3, 63, and 69 recite that the plant is being compared to either a known or a representative member of a specific breeding family. Appellants state that because Barcaccia utilizes only geranium plants of unknown genetic origin one of ordinary skill would not have concluded based on Barcaccia that AFLP was successful in distinguishing cultivars. It is noted that the claims are drawn to a method of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar and thus the examiner was stating in the final office action mailed 08/02/06 that the claims do not require that the genetic origin *of the plant of interest* to be known. The claim does require comparing a genomic fingerprint to that of a known genomic fingerprint cultivar however the claim does not require that the plant is known but that the cultivar is known. Hence, Barcaccia teaches comparing an unknown plant to a known cultivar. Furthermore, again it is noted that Barcaccia was not cited to demonstrate the relationship between poinsettia and geraniums or provide evidence of a relationship between the two plants, Barcaccai was cited to demonstrate that AFLP was a known predictable method to estimate a genetic relationship.

Appellant's state on page 16 that the rejection is based on the premise that there would have been motivation to combine work done in geranium with work done in poinsettia and thus there is a relationship between germaniums and poinsettia's. Appellants arguments regarding the distinctness of germaniums and poinsettia are directed to the legally deficient foundation of the outstanding rejection because there is no genetic relationship between geranium and poinsettia,

there would be no motivation to combine the cited references and even if the references were so combined there would not have been any reasonable expectation of success. As stated previously, Barcaccia was cited because Barcaccia et al. teach that AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences, even between phenotypic ally similar individuals (page 249, 2nd column, 1st full paragraph). Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and are effective for calculating the genetic distance between cultivars (page 249, 2nd column, 3rd full paragraph). Therefore, one of ordinary skill in the art would have been motivated to use AFLP, as taught by Barcaccia in the method of Ling et al. Barcaccia et al. teaches both motivation and reasonable expectation of success, as Barcaccia teaches that AFLP fingerprinting is a powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences. Barcaccia also teaches a reasonable expectation of success that AFLP fingerprints decimates genetic difference even between phenotypically similar individuals. Additionally, both AFLP and RAPD were known in the prior art to estimate genetic relationships between plant cultivars, thus one of ordinary skill in the art could have substituted one known method of generating DNA fingerprints using RAPD as taught by Ling for another known method of generating DNA fingerprints by AFLP as taught by Barcaccia to achieve the predictable result of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar.

Appellants state on page 16, last paragraph, that the forensic work of Barcaccia in comparing a found geranium flower of unknown origin with another geranium plant of unknown

origin did not evaluate the breeding history of the plant as recited in claim 3. Appellants stated that evaluation of breeding history is used to refer to methods that provide information regarding the pedigree of the plant for example if a plant is essentially derived from another plant. Appellants state that one of the unexpected discoveries was that the presently claimed invention can be used to evaluate breeding history and state that none of the cited references give any inkling that AFLP analysis or any other genetic analysis can be used to evaluate breeding history in any plant. This response has been reviewed but not found persuasive as the claims do not require the pedigree of the plant. Furthermore, Barcaccia et al. teach using AFLP to generate a fingerprint of each plant (page 245, *AFLP markers*) and determine the identity/diversity by calculating the genetic dissimilarly estimate (GDE) in all pair wise comparisons using the formula by Dice et al (1945) (page 245-6, *Data collection and analysis*). Furthermore, Barcaccia et al. teach using AFLP markers to identify the genetic relationship (identity vs. diversity) (breeding history) between a found flower and another plant (see page 244, 1st column, 2nd full paragraph). Therefore, Barcaccia et al. teach using AFLP markers to identify the breeding history of a plant (the found flower to a known plant). Therefore, Barcaccia et al. teach using AFLP markers to evaluate the breeding history of an asexual plant. Additionally, Ling et al. teach using RAPD markers to determine breeding history of the breeding family Freedom (see figure 3, pg. 124, 1st paragraph). Thus Ling et al in view of Barcaccia as defined by Dice et al. render the claimed invention obvious.

(C) Claim Rejection – 35 USC 103(a) – Ling et al. in view of Sukhwinder et al. as defined by Dice et al.

Appellants traverse the rejection on pages 17-18 of the appeal brief filed 02/01/2008. The remarks have been thoroughly reviewed but were not found persuasive.

Appellants state on page 17, first para that the work of AFLP in rice as reported by Sukwinder is not relevant to poinsettias and would not have provided motivation to combine or any reasonable expectation of success with respect to the claimed invention that are legally sufficient to maintain the present rejection. Appellants state that rice is unrelated taxonomically to rice and one of ordinary skill would not consider results in distantly related plants. These arguments have been thoroughly reviewed but were not found persuasive. While Sukhwinder et al. does not teach using AFLP to determine genetic relationships for poinsettias cultivars, it would have been obvious to one skilled in the art at the time of the invention to use AFLP method taught by Sukhwinder to determine genetic relationships for poinsettias cultivars because Sukhwinder et al. teaches that although other fingerprinting methods such as RFLP and RAPD assays had been commonly used to discriminate *various* cultivars, the new technique of using AFLP "combines reliability and robustness of RFLP and strength of PCR techniques". Therefore, one of skill in the art would have been motivated to use the method of Sukhwinder et al. with poinsettia cultivars as Sukhwinder et al. suggest that this new technique can discriminate *various* cultivars, which could include poinsettia cultivars. Furthermore, both AFLP and RAPD were known in the prior art to estimate genetic relationships between plant cultivars, thus one of ordinary skill in the art could have substituted one known method of generating DNA fingerprints using RAPD as taught by Ling for another known method of generating DNA fingerprints by AFLP as taught by Sukwinder to achieve the predictable result of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar.

(D). Claim Rejections – 35 USC 103(a) – Ling et al. in view of Barker as defined by Tulloss

Appellants traverse the rejection on pages 18-19 of the appeal brief filed 02/01/2008. The remarks have been thoroughly considered but were not found persuasive.

Appellants assert that again the AFLP work in willow as reported by Barker is not relevant to poinsettias and would not provide the requisite motivation or any reasonable expectation of success with respect to the present invention as willow trees are unrelated taxonomically to poinsettia. Appellants additionally assert that the unpredictability of genetic fingerprinting in poinsettias and the use of AFLPs in poinsettias as shown in the declaration by Moyer and in the appeal brief could not have been at all obvious to one of ordinary skill in the art based on Ling in view of Barkers work and further in view of the methods of Tulloss. This argument has been thoroughly reviewed but was not found persuasive because the willow is an asexual plant, like the poinsettia, and the genetic variation, regardless of the origin of DNA, is analyzed and evaluated in the same manner. Barker et al. teach the AFLP assay "revealed more genetic diversity and discriminated between closely related clones" (p. 182, 1st column, 2nd paragraph) and therefore the ordinary artisan would have been motivated to use the assay of AFLP to determine genetic variation in poinsettias.

It is noted that the declaration asserts the application of AFLP technology to any particular plant is uncertain and assert that it is relevant to consider how distantly related poinsettia is to rice, willow, Pelargonium and Caladium. The declaration provides a taxonomic relationship of poinsettia's to each of these plants. The declaration asserts that it is impossible to generalize findings about one member of subclass Rosidae to another. It is noted that each of the references cited that use AFLP technology were cited not to compare the relationship between a

poinsettia to the other species but to demonstrate that at the time the invention was made it would have been obvious to use the known predictable method of AFLP to generate DNA fingerprints with the method of Ling et al, which establishes a genetic diversity of poinsettia' plants by use of RAPD. The claims do not require any taxonomic relationship and are drawn to a method of estimating a genetic relationship between a genomic DNA and a cultivar, as repeatedly shown in several references, Loh, Barcaccia, Barker, as well as Arnold et al. and Keim et al. and newly presented references by appellants, Russell and Peiji all teach that AFLP can distinguish a genetic relationship by analyzing DNA fingerprints even within very similar species (E. Coli and B. anthracis) and there is no evidence of record that AFLP would not have worked for poinsettias. Furthermore, both AFLP and RAPD were known in the prior art to estimate genetic relationships between plant cultivars by generating DNA fingerprints, thus one of ordinary skill in the art could have substituted one known method of generating DNA fingerprints using RAPD as taught by Ling for another known method of generating DNA fingerprints by AFLP as taught by Barker, Loh, Barcaccia, or Sukwinder to achieve the predictable result of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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